

ABSTRACT

A flow control valve is disclosed for controlling the rotation of a hydraulic motor, such as a turbine, a mud motor, for example, having an element that rotates in response to power fluid. The valve disclosed may include a valve housing and a valve piston, each having a port, moveable relative to one another. When the ports at least partially align, bypass flow is generated which acts to decrease the speed of rotation of the element, such as a turbine shaft. An energizer, such as a pump assembly, is further described which is adapted to move the valve housing or the valve piston in response to the speed of rotation, such that bypass flow is a function of the motor speed (i.e. speed of rotation of the element). A bottom hole assembly including a flow control valve and a method of controlling the rotation of a downhole tool are also described.